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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/584,585	05/31/2000	Howard Roy Stuart	148-026 (Stuart 3)	4650

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EXAMINER

VY, HUNG T

ART UNIT PAPER NUMBER

2828

DATE MAILED: 06/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/584,585

Applicant(s)

STUART, HOWARD ROY

Examiner

Hung T Vy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 May 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

  
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**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05/31/2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: \_\_\_\_

### **DETAILED ACTION**

1. In response to the communications dated 05/31/2000, claims 1-29 are pending in this application.

### **Acknowledges**

2. Receipt is acknowledged of the following items from the Applicant.

Information Disclosure Statement (IDS) filed on 09/25/2000 and made of record as Paper No. 2. The references cited on the PTOL 1449 form have been considered.

### **Drawings**

3. The drawings 4 are objected to by the PTO Draftsperson for the reasons noted on the attached Notice of Draftsperson's Patent Drawings Review, form PTO-948.

The drawings are objected to under 37 CFR 1.83(a) because they fail to show the LED, the wavelength converter, the sensor or the switch as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: Reference characters 22 in figure 4. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application.

### **Claim Rejections - 35 USC § 112**

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1 - 29 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 – 29 are confusing, vague and indefinite.

Claims 1 – 17 recite an optical device without the recitation of any structure to support the optical device. The claims recite a metal layer having a first surface comprising a plurality of voids having a dimension less than the wavelength of optical energy being provided which fail to define any optical structure. The claims recite no more than a metal layer or a plate has a plurality of holes, which the metal layer is similar to a drill hole guide. The claims fail to provide any structural support for an optical structure.

Claim 17 further recites a laser, an LED, a wavelength converter, a sensor or a switch. The claim is not supported by any figure of the drawing. The claim fails to provide any structural relationship between the recited elements.

Claims 18 – 27 recite a method for optical process without the recitation of any means or structure and steps for performing the optical process. The claims recite no more than a metal layer with one or more voids. It is not clear how a metal layer is

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used for processing an optical function. The claims fail to provide any method steps for performing the optical process.

Claims 28 and 29 recite "a laser" and "an LED" respectively. The claims fail to provide any structure to support "a laser" and "an LED" as recited in the claims. The sole recitations of "a metal layer having a plurality of voids" render the claim vague and indefinite.

### **Claim Rejections - 35 USC § 102**

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1,2, 3,4,6,7,12, 13, 14,15,16,17,18,19,22,23,24,25 and 28 are rejected under 35 U. S. C. § 102 b as being anticipated by U.S. patent No. 5,278,925 by Boysel et al.

Regarding to claim 1 Boysel et al. disclose an optical structure for processing optical energy comprising a metal layer (22) having a first surface comprising a plurality of voids (24) having a dimension less than the wavelength of optical energy being processed (See column 2 – line 63 –64).

Regarding to claim 2 Boysel et al. disclose the structure wherein voids (24) are concave and indentations. (See Fig 1b.)

Regarding to claim 3 Boysel et al. disclose the structure wherein voids extend from the first surface to a second surface of said metal layer (22) (See Fig 2)

Regarding to claim 4 Boysel et al. disclose the structure wherein said voids are cylindrical holes passing through said metal layer. (See Fig 2 and column 2, line 63 – 68).

Regarding to claim 6 Boysel et al. disclose the structure wherein said voids are arranged in an ordered array (See column 3, line 34 – 37).

Regarding to claim 7 Boysel et al. disclose the structure wherein said voids are arranged in a triangular array (See Fig. 5).

Regarding to claim 12, 13 and 22, Boysel et al. disclose the structure wherein gain layer is placed on top of metal layer and the structure comprising one or more gain layers placed between a substrate and metal layer (See Fig. 8 and Fig. 2).

Regarding to claim 17 Boysel et al. disclose the structure, which is in the form of a laser, an LED, a wavelength converter, a sensor or a switch (See column 2 line 9 – 14 and Fig2).

Regarding to claim 14, 15, 16, 23, 24 and 25, Boysel et al. disclose the structure and method wherein a non-linear material (17) is placed adjacent the voids, at least partially in the voids (24), non-linear material fills the voids (24) (See column 4, line 48 – 52 and Fig 1a.).

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Regarding to claim 8, and 27 Boysel et al. show in figures 4 and 5 the structure and method wherein said voids arranged in an ordered array produce a phase-matched effect.

Regarding to claim 26 Boysel et al. disclose the method comprising optical pumping. It is inherence Boysel et al. have the optical pumping for the wave-guide.

### **Claim Rejections - 35 U.S.C. § 103**

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5,9 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. patent No. 5,278,925 to Boysel et al.

Regarding to claim 5 Boysel et al. disclose the structure having voids but Boysel et al do not disclose diameter of the void from about 10nm to about 1 micron. Boysel et al disclose the claimed invention except for diameter. It would have been an obvious matter of design choice to have the size of diameter, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art in order to get the best result. In re Rose, 105 USPQ 237 (CCPA 1955).

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Regarding to claim 9 Boysel et al. disclose the structure except metal layer is greater than 50 nm thick. It would have been an obvious matter of design choice to have the thick of metal, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art in order to get the best result. In re Rose, 105 USPQ 237 (CCPA 1955).

8. Claims 10,11,20,21 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. patent No. 5,278,925 to Boysel et al in view of Bischel et al., U.S Patend No. 6,208,791.

Regarding to claim 10,11, 20, and 21 Boysel et al do not disclose the structure or method wherein an active material placed adjacent the voids, placed inside void. However, because Bischel et al disclose the active material placed adjacent the voids, inside the hole with active material as re-radiator material (see column 4 line 36 –38 and Fig. 1)

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the structure or method wherein an active material placed adjacent or inside the voids because those skilled in the art will recognize that such modification and variations can be made without departing from the spirit of the invention.



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9. Claims 29 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. patent No. 5,278,925 to Boysel et al. in view of Biegelsent et al, U.S Patent No. 5,607,876.

Regarding to claim 29 Boysel et al do not disclose the LED structure comprising a plurality of voids, said voids having a dimension less then the wavelength of optical energy being processed. However, because Biegelsent et al disclose an LED structure (see column 4, line 38 – 41)

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the LED structure comprising a plurality of voids, said voids having a dimension less then the wavelength of optical energy being processed because those skilled in the art will recognize that such modification and variations can be made without departing from the spirit of the invention.

#### **Citation of Pertinent References**

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patent to Boysel et al. discloses integrate-optic wave-guide devices and method, U.S. Patent No. 5,278,925.

The patent to Bischel et al. disclose Optically Integrating Pixel Micorstructure, U.S. Patent No. 6,208,791.

The patent to Biegelsen et al. disclose Fabrication of Quantum confinement semiconductor light-emitting devices, U.S. Patent No. 5,607,876.

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### Conclusion

11. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung VY whose telephone number is (703) 605-0757. The examiner can normally be reached on Monday-Friday 8:30 am - 5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul IP can be reached on (703) 308-3098. The fax numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
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